

**AMENDMENTS TO THE CLAIMS WITH MARKINGS TO SHOW CHANGES  
MADE, AND LISTING OF ALL CLAIMS WITH PROPER IDENTIFIERS**

8. (Previously presented) The DNA expression construct according to claim 22, said construct comprising covalently closed linear deoxyribonucleotide molecules comprising a linear double stranded region, wherein ends of the double stranded region are linked to short single stranded loops consisting of deoxyribonucleotides, said double strand forming single strands consisting only of encoding sequences under the control of the promoter and the terminator sequence operable in an animal to be vaccinated.
9. (Previously presented) The DNA expression construct according to claim 22, wherein the expression construct is covalently linked to one or more peptides.
10. (Previously presented) The DNA expression construct according to claim 9, wherein the peptide is composed of 30 amino acids, at least half of which are a member of the group consisting of arginine and lysine.
11. (Previously presented) The DNA expression construct according to claim 9, wherein the one peptide comprises SEQ ID NO: 41.
- 12.-21. (Canceled)
22. (Previously presented) A DNA expression construct for the expression of proteins in the Feline Leucosis virus in cat cells comprising:  
a promoter sequence operable in Felidae and at least one Feline Leucosis virus nucleotide sequence which is mutated as compared to a wild type Feline Leucosis virus nucleotide sequence, wherein said mutated nucleotide sequence encodes one of a structure protein "gag" or a membrane protein "env", which

comprises codons optimized for gene expression in Felidae and contains no splice donor or acceptor sequences, wherein said mutated nucleotide sequence encodes a protein as set forth in at least one selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7 and SEQ ID NO: 8; and a termination sequence.

23. (Previously presented) An isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO: 5.

24. (Cancelled).

25. (Previously presented) An isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO: 7.

26. (Cancelled)

27. (Previously presented) An isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO: 8.

28. (Cancelled)

29. (Previously presented) The DNA expression construct of claim 22 comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO: 5.

30. (Previously presented) A DNA expression construct comprising: an isolated nucleic acid molecule or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO: 5; wherein the expression of the construct in cat cells provides protection from Feline Leucosis virus infection.

31. (Previously presented) The DNA expression construct of claim 22, comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO: 7.

32. (Previously presented) A DNA expression construct comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO: 7; wherein the expression of the construct in cat cells provides protection from Feline Leucosis virus infection.

33. (Previously presented) The DNA expression construct of claim 22, comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO: 8.

34. (Previously presented) A DNA expression construct comprising: an isolated nucleic acid molecule, or the complement thereof, wherein the isolated nucleic acid molecule comprises the sequence set forth in SEQ ID NO: 8; wherein the expression of the construct in cat cells provides protection from Feline Leucosis virus infection.

35. (Currently amended) The DNA expression construct according to claim 29, further comprising a covalently closed linear deoxyribonucleotide molecule comprising a linear double stranded region, a short single stranded loop consisting of deoxyribonucleotides, a promoter that is operable in an animal that is to be vaccinated, and a terminator sequence.

36. (Currently amended)) The isolated nucleic acid of claim 23, wherein the a “gag” coding sequence is amplified by primers selected from the group consisting of SEQ ID NOS: 36, 37, 38, 39 and 40

37. and 38. (Canceled)

39. (Currently amended) A pharmaceutical composition for use as vaccine in the treatment of cats suffering from Feline Leucosis infection comprising a DNA expression construct according to claim 22, and a pharmaceutically effective carrier.

40. (Currently amended) ~~A~~ The DNA expression construct of claim 8 comprising: a covalently closed linear deoxyribonucleotide molecule comprising a linear double stranded region, wherein ends of the double stranded region are linked to short single stranded loops consisting of deoxyribonucleotides, said double strand forming single strands consisting of at least one Feline Leucosis mutated virus nucleotide sequence, and a promoter sequence operable in Felidae and at least one Feline Leucosis mutated virus nucleotide sequence, wherein the mutated nucleic acid comprises the a sequence that encodes a protein set forth in one of the group consisting of SEQ ID NO: 5, SEQ ID NO: 7 and SEQ ID NO: 8; and a termination sequence.

41. (New) An isolated nucleic acid molecule, or the complement thereof comprising the sequence set forth in SEQ ID NO: 7, wherein a 'env-gp85' coding sequence is amplified by primers which selectively hybridize to the same sequence of SEQ ID No. 7.

42. (New) An isolated nucleic acid molecule, or the complement thereof comprising the sequence set forth in SEQ ID NO: 8, wherein a 'env-gp70' coding sequence is amplified by primers which selectively hybridize to the same sequence of SEQ ID No. 8.